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EXAMINER

HO, THOMAS M

ART UNIT

PAPER NUMBER

2134

DATE MAILED: 07/06/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/603,575

Applicant(s)

XU ET AL.

Examiner

Thomas M Ho

Art Unit

2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-12 are pending.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference numbers mentioned in the description: 110, 112, 114. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The purpose or specified means of usage is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The applicant claims in claims 10 and 11, "a computer-readable media including the following instructions executable by a processor:"

JMP \$+4

INT 35h

And similarly in claim 11,

JMP \$+4

INT 35h

INT 20h

The applicant fails to specify a purpose or usage for these instructions in claims 10 and 11. Consequently it is unclear from the claims whether the intended usage is obfuscation code that the obfuscation software merely inserts, or the actual code of the obfuscation program itself, such as that stated in claim 6.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1,2,5-7,9,12 are rejected under 35 USC 102(a) as being anticipated by Granger et al., US Patent 6,643,775.

In reference to claim 1:

Granger et al. discloses a method for obfuscating computer program instructions upon disassembly, the method comprising:

- Inserting an obfuscating instruction for causing a disassembler to not disassemble one or more bytes subsequent to the obfuscating instruction (Column 19, lines 5-22)
- Inserting a branch instruction to invoke execution of the one or more bytes subsequent to the obfuscating instruction. (Column 23, line 62 – Column 24, line 3)

In reference to claim 2:

Granger et al. discloses a method wherein two or more of the obfuscating instructions are used adjacently to increase the number of the one or more bytes, where the obfuscating instructions have been used adjacently to increase the size of the one or more byte-instructions. (Column 22, Table 2)

In reference to claim 5:

Granger et al. discloses a method of obfuscating computer instructions upon disassembly wherein the steps are performed manually. (Column 22, table 2) provides a list of obfuscation rules that though intended to be placed there by a software mechanism, can clearly be inserted manually if so desired by following the obfuscation rules in the given list.

In reference to claim 6:

Granger et al. discloses a method wherein the steps are performed by a software process.

(Column 19, lines 34-41)

In reference to claim 7:

Granger et al. discloses a method wherein parameters are supplied to the software process, the method further comprising:

Supplying a parameter to the software process to specify the frequency that an obfuscating instruction is to be inserted in a predetermined program. (Column 20, line 59 – Column 21, line 6)

Claim 9 is rejected for the same reasons as claim 1.

Claim 12 is rejected for the same reasons as claim 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3,8 rejected under 35 U.S.C. 103(a) as being unpatentable over Granger et al.

In reference to claim 3:

Granger et al. fails to explicitly disclose a method wherein the obfuscating instruction is an INT instruction.

The examiner takes official notice however, that the use of an INT instructions are well known to those of ordinary skill in the art. Software and code obfuscation's primary purpose is to obfuscate the code so that it would be difficult for a third party to decompile or in other instances, to hide the implementation details of the algorithm itself. It is understood that any instruction or set of instructions used towards the purpose of obfuscation, is at the disposal of the programmer as long as the final operation of the obfuscated instructions is substantially similar to the original code, though slight discrepancies in the execution time of the code may arise.

Granger et al. (Column 19, lines 34-54)

It would have been obvious to one of ordinary skill in the art at the time of invention to include INT as an obfuscating instruction, in order to match the functionality of the previous code or code which is being obfuscated, especially if the code which is being obfuscated included an INT call itself.

In reference to claim 8:

Granger et al. fails to disclose a method wherein the frequency is specified as a number of instructions of the predetermined program between each insertion of the obfuscating instruction.

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The examiner takes official notice that mechanisms with which a frequency or magnitude of action can be adjusted are common and well known in the art. Granger et al. for example discloses a method wherein the frequency of obfuscation code is specified as a number of instructions of the predetermined program, or some multiple thereof.

It would have been obvious to one of ordinary skill in the art at the time of invention to specify the frequency of the obfuscation as a number of the instructions of the predetermined program between each insertion, as a matter of design choice.

Conclusion

9 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent 6,665,796

US Patent 6,668,325

US Patent 6,594,761

US Patent 5,748,741

US Patent 6,205,550


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M Ho whose telephone number is (703)305-8029. The examiner can normally be reached on M-F from 8:30am – 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory A. Morse can be reached at (703)308-4789. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-5484.

TMH

December 29th 2003


GREGORY MORSE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100